

Material Safety Data Sheet

I. PRODUCT IDENTIFICATION

Name: HT Armaflex Insulation.

Description: Expanded, closed-cell, sulfur-cured rubber type compound..

Available in various sizes and in several forms; e.g., pipe insulation, and sheet insulation.

II. DEPARTMENT OF TRANSPORTATION INFORMATION

Shipping name: Not classified. Hazard Class: N/A ID # N/A

III. HMIS (0 = minimal hazard; 4 = severe hazard)

Health = 0 Flammability = 1 Reactivity = 0

IV. PRODUCT CONTENT

This product is classified as an "article" according to Title 29 of the Code of Federal Regulations, OSHA Part 1910.1200©. They are formed to a specific shape or design during manufacture, has end use functions dependent upon their shape and design, and does release any hazardous chemical under normal conditions of use. This product does NOT contain asbestos or polychlorinated biphenyls.

V. HAZARDOUS INGREDIENTS

(Chemical Identity; Common Name)

C.A.S. No.

%

OSHA PEL

ACGIH TVL

None

VI. PHYSICAL DATA

APPEARANCE AND COLOR: Black. BOILING POINT (°F): N/A.

VAPOR PRESSURE (mm Hg @ 20°C): N/A. VAPOR DENSITY (Air =

1): N/A. SOLUBILITY IN WATER: N/A. SPECIFIC GRAVITY (H₂O=1):

N/A. PERCENT VOLATILE BY WEIGHT (30 min.@275°F): N/A.

EVAPORATION RATE (Butyl Acetate=1): N/A. pH: N/A VOC: N/A.

when working with any materials. It is important that the end user makes a determination regarding the adequacy of the safety procedures employed during the use of this product.

N/A -not applicable or not available

N/K - none known or not known

VII. FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: N/A. RANGE: LEL = N/A. UEL = N/A. EXTINGUISHING

MEDIA: Water. SPECIAL FIRE FIGHTING PROCEDURES: Protect fire

fighters from toxic products of combustion by wearing self-contained

breathing apparatus. UNUSUAL FIRE AND EXPLOSION HAZARDS: None.

VIII. HEALTH HAZARD DATA

PRIMARY ROUTE (S) OF ENTRY: N/A. TARGET ORGANS: N/A. EFFECTS

OF OVEREXPOSURE: SKIN AND EYES: N/A. INHALATION: N/A.

CARCINOGENICITY: NTP: No IARC Monographs: No OSHA Regulated:

No. MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE N/A.

FIRST AID PROCEDURES: SKIN AND EYES: N/A. INHALATION N/A.

INGESTION N/A.

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IX. REACTIVITY DATA

STABILITY N/A. INCOMPATIBILITY: N/A. HAZARDOUS DECOMPOSITION

PRODUCTS: N/A. HAZARDOUS POLYMERIZATION: N/A.

X. SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED N/A. WASTE

DISPOSAL METHOD: Dispose of container and any unused contents in

accordance with Federal, State and Local Waste Disposal

Regulations

XI. SPECIAL HANDLING AND USE INFORMATION

VENTILATION: N/A. RESPIRATORY PROTECTION N/A. SKIN AND EYE

PROTECTION: N/A.

XII. SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE N/A. OTHER

PRECAUTIONS: N/A. WORK SITE ENVIRONMENT: N/A.

The information presented herein is supplied as a guide to those who handle or use this product. Safe work practices must be employed

HT Armaflex Insulation

Prepared 8/00 – Replaces 5/97

Armacell LLC
P.O. Box 1038
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Mebane, NC 27302
(919) 304-3846



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Flame Retardants to Be Extinguished

■ Manufacturer agrees to stop producing the chemicals, which are found to be building up in wildlife.

By Marla Cone, Times Staff Writer

The manufacturer of furniture flame retardants, which are accumulating in human bodies and wildlife, announced Monday that it would voluntarily stop producing the chemicals by the end of 2004.

Great Lakes Chemical Corp., based in Indianapolis, had been under pressure for several months by scientists and the U.S. Environmental Protection Agency, which had asked the company to phase out penta and octa PBDEs, or polybrominated diphenyl ethers.

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Environmental scientists say the flame retardants, used mostly in polyurethane foam furniture, are doubling in concentration in the breast milk of U.S. women every few years and have been shown in animal tests to disrupt development of newborns' brains.

Mark P. Bulriss, chief executive officer of

Great Lakes Chemical, on Monday denied any risk from its flame retardants and called them "both safe and effective." But he said the company had developed "a new generation of flame retardants" and would work with foam manufacturers to "transition away from penta PBDE in an orderly manner." Great Lakes is the only manufacturer of penta.

The company also announced that it would stop producing octa, used as a flame retardant in plastics of computers and small appliances, by the end of next year. Other U.S. chemical companies produce octa, and EPA officials said they would work with them to ph

Times

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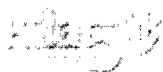
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Stephen L. Johnson, EPA's acting deputy administrator, called Great Lakes' decisive action that is likely to result in reduced amounts of these chemicals in environment."

Some environmental scientists have warned that PBDEs probably would continue contaminate people and animals for years, perhaps decades, because they remain furniture and other consumer products. But EPA officials said Monday they did not see a need to remove or replace the products.

Much of the pressure on Great Lakes came from California, which recently passed laws banning products containing penta and octa in 2008. The flame retardants, used by more than 20 years, have been phased out in Europe and are used only in North America. U.S. law, banning a chemical takes years of risk studies, so the EPA worked with manufacturers for a voluntary phaseout instead.

Penta is used mostly in furniture sold in California, which has the nation's most strict furniture flammability standards. It slows the rate that flames spread in foam cushions.

Toxicologists say penta is the most worrisome chemical in commerce, comparing it to banned three decades ago. No one knows how it gets in human bodies, but they say it is consumed in fish from contaminated waters or inhaled with dust contaminated coming off household and office furnishings. Penta, which apparently spreads globally, has been found as far away as polar bears near the North Pole.

EPA officials say preliminary tests on Great Lakes' new compound, which contains brominated compound but no PBDEs, show it is not persistent, does not accumulate and has low toxicity to aquatic life. But the EPA says it will require more tests. For manufacturers worry about the effectiveness of alternatives, although they are optimistic.

Bobby Bush, vice president of Hickory Springs Manufacturing Co., the nation's largest manufacturer of furniture foam, said the new Great Lakes compound "can work successfully, even in colder weather," but that it remained problematic in hot weather, when it scorches foam.

He hopes such obstacles will be overcome by summer, and that other companies will switch to flame retardants with no brominated compounds.

Scientific studies in Europe showed in 1998 that PBDEs were building up in breast milk. Bush said the chemical company acted too slowly to test the chemicals and phase them out to warn U.S. manufacturers.

"Great Lakes could have been better prepared by pushing toxicity and similar studies earlier," Bush said.

Attention will now turn to another flame retardant, deca PBDE, used worldwide in electronics and other electronics in volumes far greater than penta and octa. Deca does not accumulate in human bodies as readily as the two that are being phased out, but it has been found in low levels in breast milk. The European Union is considering banning it.

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MATERIAL SAFETY DATA SHEET

Armstrong World Industries, Inc.
Human Resources Department
313 W. Liberty Street, P. O. Box 3001
Lancaster, PA 17604
Telephone (717) 396-2328 or 396-2935

Division: Industry Products

Issued By: Safety, Health and
Industrial Hygiene Department

Date: 3/4/94 (replaces 4/16/93)

NFPA 704 (0 = no hazard; 4 = severe hazard)

Health = 0

Fire = 1

Reactivity = 0

N/A = Not Applicable or Not Available

N/K = None Known or Not Known

Dept. of Transportation Information:

Shipping Name: Not classified

Hazard Class: N/A

ID#: N/A

I. Product Information

A. Product Name: AP Armaflex Products: including AP Armaflex tube, AP Armaflex SS tube, AP Armaflex sheet and rolls, AP Armaflex SA sheet, AP Armaflex tape

B. Chemical Name and Synonyms: N/A

C. Chemical or Product Family: N/A

II. Ingredient Information

A. Hazardous Components
(Chemical Identity; Common Name)

C.A.S. No.

*

OSHA PEL

ACGIH TLV

None

B. This product is an expanded, closed-cell, sulfur-cured rubber type compound. It comes in various sizes and in several forms; e.g., pipe insulation, sheet insulation, and insulating tape.

This product formulation does not contain asbestos.

C. This product is classified as an "article" according to Title 29 of the Code of Federal Regulations, OSHA Part 1910.1200(c). They are formed to a specific shape or design during manufacture, has end use functions dependent upon their shape and design, and does not release any hazardous chemical under normal conditions of use.

III. Physical Data

A. Appearance and Color: black

B. Boiling Point (Degrees F): N/A

C. Vapor Pressure (mm Hg 20 degrees C): N/A

D. Vapor Density (Air = 1): N/A

E. Solubility in Water: N/A

F. Specific Gravity (H₂O = 1): N/A

G. Percent Volatile by Weight (30 min. @ 275 degrees F): N/A

H. Evaporation Rate (Butyl Acetate = 1): N/A

I. pH: N/A

IV. Fire and Explosion Data

A. Flash Point: N/A

B. Flammable Limits: LEL = N/A; UEL = N/A

C. Extinguishing Media: Water

D. Special Fire Fighting Procedures: Protect fire fighters from toxic products of combustion by wearing self-contained breathing apparatus.

E. Unusual Fire and Explosion Hazards: None

AP Armaflex Products: including AP Armaflex tube, AP Armaflex SS tube, AP armaflex sheet and rolls,
AP Armaflex SA sheet, AP Armaflex tape (Cont'd.)

V. Health Data

A. Primary Route (s) of Entry: N/A

B. Target Organs: N/A

Effects of Overexposure: N/A

Skin and Eyes: N/A

Inhalation: N/A

C. Carcinogenicity: NTP: No IARC Monographs: No OSHA Regulated: No

D. Medical Conditions Generally Aggravated by Exposure: N/A

E. First Aid Procedures: N/A

Skin and Eyes: N/A

Inhalation: N/A

VI. Reactivity Data

A. Stability: N/A

B. Incompatibility: N/A

C. Hazardous Decomposition Products: N/A

D. Hazardous Polymerization: N/A

VII. Spill or Leak Procedures

A. Steps to be taken if material is released or spilled: N/A

B. Waste Disposal Method: Dispose of in accordance with federal, state, and local regulations.

VIII. Special Protection Information

A. Ventilation: N/A

B. Respiratory Protection: N/A

C. Skin and Eye Protection: N/A

IX. Special Precautions

A. Precautions to be taken in handling and storage: N/A

B. Other Precautions: N/A

The information presented herein is supplied as a guide to those who handle or use this product. Safe work practices must be employed when working with any materials. It is important that the end user makes a determination regarding the adequacy of the safety procedures employed during the use of this product.

Material Safety Data Sheet

I. PRODUCT IDENTIFICATION

Name: Armaflex 520 Adhesive

Description: Solvent-dispersed synthetic rubber resin adhesive.

II. DEPARTMENT OF TRANSPORTATION INFORMATION

Shipping name: Adhesive containing a flammable liquid (Hexane & Acetone)
Hazard Class: 3 (Flammable Liquid) ID # UN 1133 PG: II (Armaflex 520 Adhesive)

Reportable Quantity (RQ): 6250 lb.

EMERGENCY ONLY CONTACT: CHEM-TEL 800-255-3924

III. HMIS (0 = minimal hazard; 4 = severe hazard)

Health = 2 Flammability = 3 Reactivity = 0

IV. PRODUCT CONTENT

This product contains chemicals subject to the reporting requirements of Section 313 of Title III of the Superfund Amendment and Reauthorization Act of 1986 and 40 CFR Part 372. All components are on TSCA Inventory. This product does NOT contain asbestos or polychlorinated biphenyls.

V. HAZARDOUS INGREDIENTS

(Chemical Identity: Common Name)

<u>(Chemical Identity: Common Name)</u>	<u>C.A.S. No.</u>
Acetone	67-64-1
Toluene	108-88-3
Hexane	110-54-3
Synthetic Rubber	N/A
Phenolic Resin	25085-50-1
Rubber Curing Ingredients	1309-48-4

%

25

16

34

13

9

3

OSHA PEL

750 ppm

STEL: 1000 ppm

100 ppm

STEL: 150

50 ppm

N/K

N/K

N/K

ACGIH TVL

500 ppm

STEL: 750 ppm

50 ppm

(skin)

50 ppm (skin)

N/K

N/K

N/K

VI. PHYSICAL DATA

APPEARANCE AND COLOR: Straw colored liquid with characteristic solvent odor. BOILING POINT (°F): >152. VAPOR PRESSURE (mm Hg @ 20°C): 180. VAPOR DENSITY (Air = 1): N/K. SOLUBILITY IN WATER: Negligible. SPECIFIC GRAVITY (H₂O=1): 0.83. PERCENT VOLATILE BY WEIGHT (30 min. @ 275°F): 75. EVAPORATION RATE (Butyl Acetate=1): N/K. pH: N/A VOC: 618 g/l calculated at 70°F/21°C, SCAQMD.

VII. FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: 20°F (-7°C) based on Acetone (closed cup).

FLAMMABLE RANGE: LEL = 1.1; UEL = 13.0 (based on Hexane and Acetone). EXTINGUISHING MEDIA: Carbon dioxide, dry chemical, alcohol-type foam. SPECIAL FIRE FIGHTING PROCEDURES: Protect fire fighters from toxic products of combustion by wearing self-contained breathing apparatus. UNUSUAL FIRE AND EXPLOSION HAZARDS: Closed containers in a fire may rupture due to pressure build-up; use water to cool containers to prevent this.

VIII. HEALTH HAZARD DATA

PRIMARY ROUTE (S) OF ENTRY: Inhalation and direct dermal exposure. TARGET ORGANS: Upper respiratory tract, skin and eyes. EFFECTS OF OVEREXPOSURE: SKIN AND EYES: Excessive skin contact may cause drying and cracking of skin, defatting of tissue, and result in dermatitis. Contact with eyes will cause irritation. INHALATION: May cause irritation of respiratory tract, coughing, and CNS effects such as headache, dizziness, drowsiness, nausea. CARCINOGENICITY: NTP: No IARC Monographs: No OSHA Regulated: No MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE: Any condition generally aggravated by solvents; preexisting upper respiratory and lung disease such as, but not limited to bronchitis, emphysema, and asthma. FIRST AID PROCEDURES: SKIN AND EYES: Flush any skin or eye contact with plenty of water. Additionally with skin contact, wash with soap and water. Refer to physician if irritation or symptoms persist. INHALATION: Remove to fresh air if exposed to excess concentrations of vapor. Seek medical attention if symptoms persist. INGESTION: Do not induce vomiting. Call Poison Control Center or physician for guidance.

IX. REACTIVITY DATA

STABILITY: Stable. INCOMPATIBILITY: Strong oxidizing agents. HAZARDOUS DECOMPOSITION PRODUCTS: Carbon monoxide, carbon dioxide, and other toxic vapors and gases that are common to thermal degradation of organic compounds. HAZARDOUS POLYMERIZATION: Will not occur.

X. SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED: Remove all sources of ignition. Ventilate area of spill or leak; if using mechanical ventilation, make sure that it is explosion-proof or does not present an ignition source. For exposures above TLV, wear approved respiratory equipment. Contain spill, preventing it from entering sewer lines or waterways. Use absorbent to assist with the pick-up of material. Scrape up adhesive and place in container. WASTE DISPOSAL METHOD: Dispose of container and any unused contents in accordance with Federal, State and Local Waste Disposal Regulations. Do not flush unused contents or residue down drains. Do not reuse container.

XI. SPECIAL HANDLING AND USE INFORMATION

VENTILATION: Extremely flammable vapors may ignite explosively or cause flash fire. Use natural cross-ventilation, local (mechanical) pick-up, and/or general area (mechanical) ventilation to prevent an accumulation of solvent vapors, keeping in mind that the ventilation pattern must remove the heavier-than-air solvent vapors from the lower levels of the work spaces. The ventilation should be sufficient to keep the solvent vapor concentration below the TLV. RESPIRATORY PROTECTION: With adequate ventilation, respiratory equipment should not be needed. If adequate ventilation is not afforded, wear respiratory equipment approved for organic vapors. SKIN AND EYE PROTECTION: During the manufacture and packaging of this product, impervious gloves, eye protection, and eye wash facilities may be appropriate. During normal end product use, cotton or loop-pile gloves and spectacle-type safety glasses are recommended to prevent contact with this mastic product.

Armaflex 520 Adhesive

Prepared 10/03 – Replaces 4/03

2 Pages

Armacell LLC
P.O. Box 1038
7600 Oakwood Street Extension
Mebane, NC 27302
(919) 304-3846

XII. SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Store in area suitable for flammable mixtures. Recommended storage temperature is below 90 ° F. OTHER PRECAUTIONS: Vapors are flammable and are heavier-than-air. Prohibit smoking and eliminate all other sources of ignition, such as regular electrical tools and appliances, making sure that pilots on gas-fired water heaters are extinguished. Warning: This product contains toluene, a chemical known to the State of California to cause birth defects or other reproductive harm. WORK SITE

ENVIRONMENT: Initially there may be a potential adverse impact on indoor air quality within the general work area during the installation process. Therefore you should advise the building manager or other appropriate person that:

- It will be necessary to establish and maintain adequate ventilation of the work area, without causing the entry of contaminants to other parts of the building; and
- Persons who are sensitive to odors and/or chemicals should be advised to avoid the work area during this process.

The information presented herein is supplied as a guide to those who handle or use this product. Safe work practices must be employed when working with any materials. It is important that the end user makes a determination regarding the adequacy of the safety procedures employed during the use of this product.

N/A -not applicable or not available

N/K – none known or not known



MATERIAL SAFETY DATA SHEET

Armstrong World Industries, Inc.
Human Resources Department
313 W. Liberty Street, P. O. Box 3001
Lancaster, PA 17604
Telephone (717) 396-2328 or 396-2935

Division: Industry Products

Issued By: Safety, Health and
Industrial Hygiene Department

Date: 3/4/94 (replaces 4/16/93)

NFPA 704 (0 = no hazard; 4 = severe hazard)

Health = 0

Fire = 1

Reactivity = 0

N/A = Not Applicable or Not Available

N/K = None Known or Not Known

Dept. of Transportation Information:

Shipping Name: Not classified

Hazard Class: N/A

ID#: N/A

I. Product Information

A. Product Name: AP Armaflex Products: including AP Armaflex tube, AP Armaflex SS tube, AP Armaflex sheet and rolls, AP Armaflex SA sheet, AP Armaflex tape

B. Chemical Name and Synonyms: N/A

C. Chemical or Product Family: N/A

II. Ingredient Information

A. Hazardous Components
(Chemical Identity; Common Name)

C.A.S. No.

%

OSHA PEL

ACGIH TLV

None

B. This product is an expanded, closed-cell, sulfur-cured rubber type compound. It comes in various sizes and in several forms: e.g., pipe insulation, sheet insulation, and insulating tape.

This product formulation does not contain asbestos.

C. This product is classified as an "article" according to Title 29 of the Code of Federal Regulations, OSHA Part 1910.1200(c). They are formed to a specific shape or design during manufacture, has end use functions dependent upon their shape and design, and does not release any hazardous chemical under normal conditions of use.

III. Physical Data

A. Appearance and Color: black

B. Boiling Point (degrees F): N/A

C. Vapor Pressure (mm Hg 20 degrees C): N/A

D. Vapor Density (Air = 1): N/A

E. Solubility in Water: N/A

F. Specific Gravity ($H_2O = 1$): N/A

G. Percent Volatile by Weight (30 min. @ 275 degrees F): N/A

H. Evaporation Rate (Butyl Acetate = 1): N/A

I. pH: N/A

IV. Fire and Explosion Data

A. Flash Point: N/A

B. Flammable Limits: LEL = N/A; UEL = N/A

C. Extinguishing Media: Water

D. Special Fire Fighting Procedures: Protect fire fighters from toxic products of combustion by wearing self-contained breathing apparatus.

E. Unusual Fire and Explosion Hazards: None

AP Armaflex Products: including AP Armaflex tube, AP Armaflex SS tube, AP armaflex sheet and rolls,
AP Armaflex SA sheet, AP Armaflex tape (Cont'd.)

V. Health Data

A. Primary Route (s) of Entry: N/A

B. Target Organs: N/A

Effects of Overexposure: N/A

Skin and Eyes: N/A

Inhalation: N/A

C. Carcinogenicity: NTP: No IARC Monographs: No OSHA Regulated: No

D. Medical Conditions Generally Aggravated by Exposure: N/A

E. First Aid Procedures: N/A

Skin and Eyes: N/A

Inhalation: N/A

VI. Reactivity Data

A. Stability: N/A

B. Incompatibility: N/A

C. Hazardous Decomposition Products: N/A

D. Hazardous Polymerization: N/A

VII. Spill or Leak Procedures

A. Steps to be taken if material is released or spilled: N/A

B. Waste Disposal Method: Dispose of in accordance with federal, state, and local regulations.

VIII. Special Protection Information

A. Ventilation: N/A

B. Respiratory Protection: N/A

C. Skin and Eye Protection: N/A

IX. Special Precautions

A. Precautions to be taken in handling and storage: N/A

B. Other Precautions: N/A

The information presented herein is supplied as a guide to those who handle or use this product. Safe work practices must be employed when working with any materials. It is important that the end user makes a determination regarding the adequacy of the safety procedures employed during the use of this product.

Insulating Materials		
Material Subcategory	Evaluation Required	Uses/Notes/Exceptions
Fiberglass Insulation	N	<ul style="list-style-type: none"> Fiberglass insulation was previously identified as potential PCB sources but later determined to contain < 50 ppm PCBs.
Cork Hull Insulation	N	<ul style="list-style-type: none"> Cork hull insulation was previously identified as potential PCB sources but later determined to contain < 50 ppm PCBs.
Armaflex Insulation	N	<ul style="list-style-type: none"> Armaflex hull insulation (red, black, or green) was previously identified as potential PCB sources but later determined to contain < 50 ppm PCBs.
Ensolute Hull Insulation	Y	
Electrical Cabling Insulation	Y	<ul style="list-style-type: none"> Evaluate only undated cables and cables manufactured before 1/1/84. Low smoke cables (MIL-C-24843, MIL-C-24640 and any with LS prefix designation) and low current carrying cables (lighting, telephone, computer, etc) have been verified to contain < 50 ppm PCBs. Cables suspect for PCBs must also be managed as asbestos-containing unless sample results show otherwise.

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Armaflex 520 adhesive

Armaflex 520 adhesive has been specially developed to bond Armaflex, a flexible closed-cell elastomeric nitrile-rubber insulation. It joins the surfaces to be bonded reliably and safely, at medium temperatures of up to +105°C. The bond is resistant to weathering and ageing. (For HT Armaflex, use Armaflex HT 525 adhesive – see page 74).

Preparing for work

The surfaces to be joined must be clean, dry and free from contamination. If gluing on bases which already have a coat of oil based paint check the compatibility. Shake the adhesive well before use and stir. Ideal application temperature: +20°C. Not below 0°C. At temperatures below 5°C or high humidity above 85%, increased condensation may appear on the surfaces to be joined or adhesive film (see Hot Climates, page 79). Do not work on plants that are in operation.

Application

Pay attention to the Armaflex installation instructions.

Remember: apply the adhesive using a brush with firm bristles. Use a spatula or sheepskin roller for larger areas. Curing time 36 hours.

Pipe insulation

Armaflex 520 adhesive should be applied in a thin layer on both surfaces to be joined. When the adhesive is no longer stringy to the touch (open time depends on the ambient conditions) the surfaces to be joined should be pushed together with a slight pressure and then pressed firmly together.

Vessel / tank insulation (full surface gluing)

Using Armaflex 520 adhesive, follow the installation instructions on page 32.

Storage

Keep cool wherever possible, but free from frost. Damage due to frost can be reversed by storing in warm conditions, or for immediate use by using a bucket of hot water. Shelf life approx. 1 year.



Armaflex HT 525 Adhesive

Armaflex HT 525 adhesive is a two-component glue which has been developed to bond HT Armaflex insulation for medium temperatures up to +150°C*.

*For information on temperatures below -40°C or above +150°C, please consult our Customer Services Department.

Preparing for work

Before use, add the enclosed hardener to the Armaflex HT 525 adhesive whilst stirring very carefully. The mixture of hardener and adhesive can then be used for approx. 8 hours. Keep the tin firmly closed and stir well before each use. Ideal processing temperature: +15°C to +20°C. Do not use below 0°C.

Application

The application is the same as for Armaflex 520 adhesive.

Note: Due to Armaflex HT 525 adhesive being of a higher viscosity, with a quicker drying time than Armaflex 520 adhesive, we recommend the use of the Armaflex glue gun (see tool list page 5).

Storage

Keep cool wherever possible, but free from frost. Damage due to frost can be reversed by storing in warm conditions, or for immediate use by using a bucket of hot water. Shelf life of Armaflex HT 525 adhesive before adding the hardener: approx. 1 year.



Armaflex®

Armaflex is a registered trademark of Armaflex Ltd.

Armaflex cleaner

Armaflex cleaner is a clear, colourless volatile liquid. It is used for the removal of grease, oils and dirt from surfaces prior to the use of Armaflex adhesives or Armafinish FR paint (see page 76). The cleaner may also be used to clean brushes, tools, etc. which have become contaminated with Armaflex adhesive.

Metal surfaces

Before installing Armaflex sheet on to ductwork the surface shall be thoroughly cleaned and degreased using Armaflex cleaner. The cleaner is applied using clean lint-free rags and the metal surface allowed to dry completely before the application of adhesive.

Armaflex surfaces

Where adhesive is being used on the smooth surface of Armaflex, e.g. in the insulation of valves and other fittings, it is recommended that the adhesive areas are cleaned prior to application and allowed to dry thoroughly.

Cleaning tools

Brushes and equipment which have become hardened with adhesive may be recovered by soaking until soft.



Armafinish FR paint

Armafinish FR is a water-based coating using an advanced terpolymer resin system. When properly applied, it is particularly suitable for the protection of Armaflex flexible thermal insulation against sunlight, UV radiation and chemical attack. The coating, when fully cured, maintains the flexibility, resistance to water vapour and fire performance of the Armaflex material. Where resistance to damage is a particular requirement the coating may be further strengthened using Arma-Chek Web random mesh glass fibre.

Surface preparation

The Armaflex surface should be clean, dry and free from any oil, grease, organic growth and other extraneous substances that may affect adhesion and cure. Surfaces may be cleaned using Armaflex cleaner, which should be allowed to evaporate completely before the application of the coating.

Application conditions

The coating may be applied if the ambient temperature is not likely to fall below 5 °C, and the relative humidity is below 90%, providing that the dew point is not exceeded.

Coverage

COAT	l / m ²	m ² / l	Wet film / microns	Dry film / microns
1st	0.275	3.6	275	130
2nd	0.275	3.6	275	130
Overall	0.550	1.8	550	260

Where practical the first coat should be in a contrasting colour to the second coat so that adequate coverage is obtained by obliterating the substrate. To build up the required thickness Armafinish FR should not be brushed out, as with conventional paints, but rather dabbed on to the surface and lightly smoothed out. When using a brush, the second coat should be applied at right angles to the first, if it is practical to do so.

Drying time

Under normal conditions, Armafinish FR paint should be dry within 1 – 2 hours. Low temperature and / or high humidity will progressively increase the time for the coating to dry but will not affect the ultimate cure. The second coat may be applied as soon as the first coat is thoroughly dry and within 3 days of the first coat application.

Service temperature

-40 °C to + 60 °C.

Storage

Store in frost-free conditions in tightly sealed container. Keep away from sources of heat.

Shelf life

2 years in unopened containers, when stored as directed above.

Reinforcement

To reinforce the surface use Arma-Chek Web random mesh glass fibre which is embedded into the first layer of coating while it is still wet. Both coats should be applied at double the thickness recommended above (i.e. overall coverage rate of less than 1 square metre per litre). The second layer should be applied so that the Arma-Chek Web is virtually obliterated. Please note that the drying time will be extended.

It is only practical to reinforced Armafinish FR paint over small areas. Where it is required to reinforce large areas it is preferable to use the Arma-Chek system. Please consult our Customer Services Department for further information.

Application

May be applied by brush, short pile roller or airless spray equipment (at 2500-3000 psi with 19-20 thou tip size).

Armafinish FR paint – coverage chart

Based on two coats at 3.6 square metres per litre per coat.

Pipe dia.	INSULATION THICKNESS					
	6	9	13	19	25	32
	Litres per linear metre					
15	0.05	0.06	0.07	0.09	0.11	0.14
22	0.06	0.07	0.08	0.10	0.13	0.15
28	0.07	0.08	0.09	0.12	0.14	0.16
35	0.08	0.09	0.11	0.13	0.15	0.17
42	0.09	0.10	0.12	0.14	0.16	0.19
48	0.10	0.12	0.13	0.15	0.17	0.20
54	0.12	0.13	0.14	0.16	0.18	0.21
60	0.13	0.14	0.15	0.17	0.19	0.22
67	0.14	0.15	0.16	0.18	0.20	0.23
76	0.15	0.16	0.18	0.20	0.22	0.24
80	0.16	0.17	0.19	0.21	0.23	0.25
89	0.18	0.19	0.20	0.22	0.24	0.27
93	0.18	0.19	0.21	0.23	0.25	0.27
108	0.21	0.22	0.23	0.25	0.28	0.30
114	0.22	0.23	0.24	0.27	0.29	0.31
140	0.27	0.28	0.29	0.31	0.33	0.36
168	0.31	0.32	0.34	0.36	0.38	0.40
214	0.39	0.40	0.42	0.44	0.46	0.49
273	0.50	0.51	0.52	0.54	0.56	0.59
324	0.59	0.60	0.61	0.63	0.65	0.68

Material Safety Data Sheet

I. PRODUCT IDENTIFICATION

Name: WB Armaflex Finish.
Description: Acrylic Latex Enamel Paint.

II. DEPARTMENT OF TRANSPORTATION INFORMATION

Shipping name: Not classified.
Hazard Class: N/A. ID # N/A.
EMERGENCY ONLY CONTACT: CHEM-TEL 800-255-3924

III. HMIS (0 = minimal hazard; 4 = severe hazard)

Health = 1 Flammability = 1 Reactivity = 0

IV. PRODUCT CONTENT

This product **does not contain** chemicals subject to the reporting requirements of Section 313 of Title III of the Superfund Amendment and Reauthorization Act of 1986 and 40 CFR Part 372. All components are on TSCA Inventory. This product does NOT contain asbestos or polychlorinated biphenyls.

V. HAZARDOUS INGREDIENTS

<u>(Chemical Identity: Common Name)</u>	<u>C.A.S. No.</u>	<u>%</u>	<u>OSHA PEL</u>	<u>ACGIH TVL</u>
Titanium Dioxide	13463-67-7	15	Total Dust 10 mg/m ³	Total Dust 10 mg/m ³
Propylene Glycol	57-55-6	5	N/K	N/K
Butyl Benzyl Phthalate	85-68-7	<5	N/A	N/A
Water, acrylic resin and additives	N/A	75	N/K	N/K

VI. PHYSICAL DATA

APPEARANCE AND COLOR: White latex paint. BOILING POINT (°F): 212 to 698. VAPOR PRESSURE (mm Hg @ 20°C): N/K. VAPOR DENSITY (Air = 1): N/K. SOLUBILITY IN WATER: Dispersible in water. SPECIFIC GRAVITY (H₂O=1) 1.2. PERCENT VOLATILE BY WEIGHT (30 min. @ 275°F): 64. EVAPORATION RATE (Butyl Acetate=1): N/K. pH: 8.3 to 8.9. VOC: 250 g/l calculated at 70°F/21°C, SCAQMD.

VII. FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: none. FLAMMABLE RANGE: LEL = N/K; UEL = N/K. EXTINGUISHING MEDIA: Carbon dioxide, dry chemical, alcohol-type foam. SPECIAL FIRE FIGHTING PROCEDURES: Protect fire fighters from toxic products of combustion by wearing self-contained breathing apparatus. UNUSUAL FIRE AND EXPLOSION HAZARDS: Closed containers in a fire may rupture due to pressure build-up; use water to cool containers to prevent this.

VIII. HEALTH HAZARD DATA

PRIMARY ROUTE (S) OF ENTRY: Inhalation and direct dermal exposure. TARGET ORGANS: Lung, skin and eyes. EFFECTS OF OVEREXPOSURE: SKIN AND EYES: Excessive skin contact may cause irritation. Contact with eyes may cause irritation. INHALATION: May cause irritation of respiratory tract, and CNS effects such as headache, dizziness, drowsiness, nausea. Chronic overexposure to spray mist or sanding dust may cause dust disease of the lungs. CARCINOGENICITY: NTP. No IARC Monographs. No. OSHA Regulated: No. MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE: N/K. FIRST AID PROCEDURES: SKIN AND EYES: Flush any skin or eye contact with plenty of water. Refer to physician if irritation or symptoms persist. INHALATION: Remove to fresh air if exposed to excess concentrations of vapor. Seek medical attention if symptoms persist.

IX. REACTIVITY DATA

STABILITY: Stable. INCOMPATIBILITY: none known. HAZARDOUS DECOMPOSITION PRODUCTS: Carbon monoxide, carbon dioxide, and other toxic vapors and gases that are common to thermal degradation of organic compounds. HAZARDOUS POLYMERIZATION: Will not occur.

WB Armaflex Finish

Prepared 8/00 – Replaces 8/93

Armacell LLC
P.O. Box 1038
7600 Oakwood Street Extension
Mebane, NC 27302
(919) 304-3846

X. SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED: Ventilate area of spill or leak. For exposures above TLV, wear approved respiratory equipment. Contain spill, preventing it from entering sewer lines or waterways. Use absorbent to assist with the pick-up of material. WASTE DISPOSAL METHOD: Dispose of container and any unused contents in accordance with Federal, State and Local Waste Disposal Regulations. Do not flush unused contents or residue down drains.

XI. SPECIAL HANDLING AND USE INFORMATION

VENTILATION: Use only with adequate ventilation. Provide general or local exhaust ventilation in volume and pattern to keep air contaminant concentration below current applicable safety and health standards in the mixing, application and curing areas, and to remove sanding dust of dry coating. RESPIRATORY PROTECTION: Do not breathe vapors, spray mist or sanding dust. When applied in outdoor or open areas with unrestricted ventilation, and during sanding or grinding operations, use NIOSH approved mechanical filter respirator to remove solid airborne particles of overspray and sanding dust. When used in restricted ventilation areas, wear NIOSH approved chemical/mechanical filters designed to remove a combination of particles and vapor. Follow respirator manufacturer's directions for respirator use. SKIN AND EYE PROTECTION: Do not get into eyes. During normal end product use spectacle-type safety glasses are recommended to prevent contact.

XII. SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Store below 110°F and keep from freezing. Keep container closed when not in use. Do not reuse empty containers. OTHER PRECAUTIONS: None.

The information presented herein is supplied as a guide to those who handle or use this product. Safe work practices must be employed when working with any materials. It is important that the end user makes a determination regarding the adequacy of the safety procedures employed during the use of this product.

N/A -not applicable or not available
N/K – none known or not known